MAINE GEOLIBRARY

State of Maine Orthoimagery Program Briefing

What is orthoimagery?

Aerial photos that have been prepared specifically for mapping have hills and valleys "flattened" so that measurements are precise and accurate. This process is called "orthorectification" and the resulting data are called "orthophotos" or "orthoimagery".

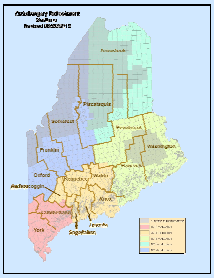
Detail of Fort Kent, 2004

Detail of Fort Kent, after the 2008 flooding

Why not just use Google Earth/Maps?

Free sources such as Google lack the flexibility needed by state users:

- They cannot be brought into any GIS software
- Accuracy, resolution, and updates are uncertain
- They get their imagery from us, not vice-versa



Collection sections for the project

Where is the funding?

We expect the funding for the base collection to be split between federal, state, and counties.

- State share is $150K per year (1/3)
- Split between agencies for the state share
- Agency shares based on use of GIS and expected use of orthoimagery
- Buy-ups to higher resolution funded by municipalities, COGs, or similar local-level organizations.

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How does Maine use orthophotos?

- Emergency Response
- Wildlife Management
- Natural Resource Planning
- Transportation Planning and Management
- Economic Development

A comparison of state-funded imagery (left) and what Google would provide (right).

How is the new ortho project organized?

The Maine GeoLibrary is coordinating the effort, which would collect new imagery over a 5 year period:

- A base collection of 2-foot and 1-meter imagery
- Reflights every 3-5 years depending on population
- Buy-up opportunities for local government

Funding scenario for orthoimagery project	
IF & W	**$20,000**
MEMA/SPO	$30,000
DEP	$30,000
DOT	$50,000
Conservation	$10,000
DMR	$5,000
DHHS	$5,000
TOTAL	$150,000

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Frequently Asked Questions (FAQ)

1) Has the contract been signed? Who is the contractor? Yes the contract was signed in early December 2011. The contractor is Woolpert, Inc., a prominent firm in the aerial photography and mapping field since 1911. They are located in Dayton, Ohio, and have partnered with local Maine firms Kappa Mapping and Bradstreet Consultants.
2) What are the base costs for this program? The base cost for the 2' orthoimagery (to be collected for most organized towns) is $52.80 per square mile for contiguous areas > 1000 sq miles. The base cost is to be split three ways, equally between State, Federal, and County partners.
3) Are there buy-up opportunities? What are the costs? How does a town purchase a buy-up? Yes, we have pre-negotiated buy-up costs with Woolpert for the project (see attached cost schedule). A town or any other organization wishing to buy up should first contact their county to see at what level the County is participating. Any buy-up on top of that would be initiated by contacting the Maine Office of GIS to enter into an MOA for a buy-up. All funding must be provided before the work order is submitted for any buy-up. There will be a buy-up workshop at the Spring 2012 Maine Municipal Association meeting in Portland.
   For complete prices lists per town and county see http://www.maine.gov/geolib.
4) Can a town or group of towns negotiate other buy-ups that are not on the cost sheet, such as lidar or imperviousness mapping related to this project? YES please contact the Maine Office of GIS to initiate discussions with the vendor.
5) What is a DTM? A DTM is a Digital Terrain Model, a 3-D representation of the terrain. A DTM is required to generate an orthoimage, and the higher the quality of the orthoimage required, the higher the quality of the DTM required to make it.
6) What are the finished products that we will receive? Participating towns or counties will receive the orthoimagery as 4-band GeoTIF images with "world' files, and all relevant documentation and metadata.
7) Is infrared data available? YES, a fourth infrared band will be delivered with each image
8) What are the expected collection dates? Each Spring, after snow melt but before full leaf-out, so as early as mid-April in southern Maine and as late as late May in some northern areas.
9) If a town does not buy up, will MEGIS send copies of the base data to a town or the town's contractor? Is there a cost for distribution? Participating towns and counties will not have to pay for a digital copy of the data, though they will need to provide a hard drive to store it on. Non-participating towns and counties will need to use the standard methods of distribution - free download from the MEGIS website on a per-tile basis, or MEGIS copying the data for a $500 flat fee.
10) In the future will each town be assigned to an RPC or COG or County for the purpose of coordinating/ facilitating buy-ups? That is the plan.
11) Can a town or group of towns change their collection year to something else? YES, but you risk losing the base funding and you would have to cover the entire cost of the collection - base + buy-ups.
12) Who will be coordinating town collections? In 2012, for Cumberland County, GPCOG will be the contact, and for York County, SMPCC will be the contact. We will be working with counties and planning commissions in other parts of the state to coordinate town buy-ups.

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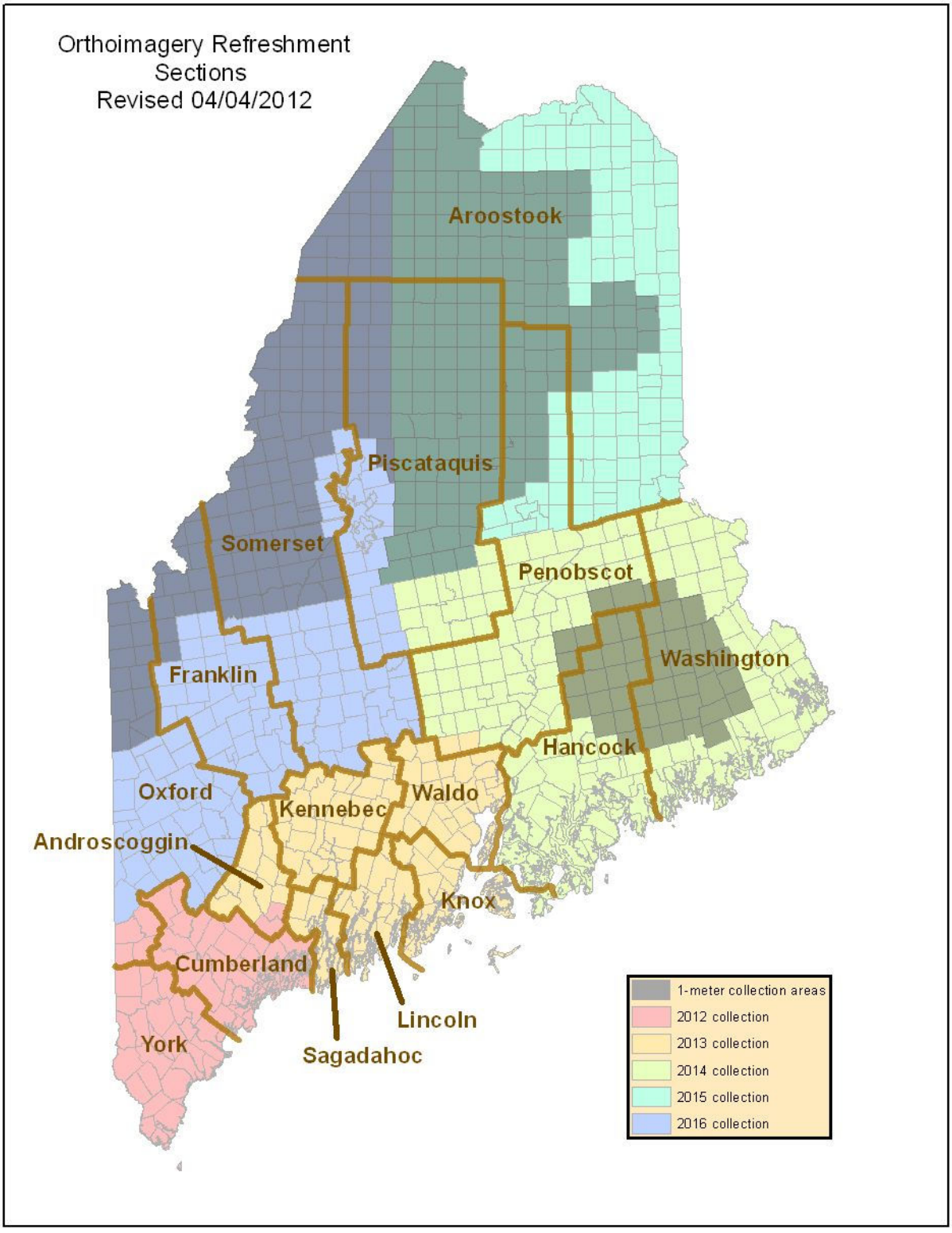
Tentative collection groups and schedule



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Cost Schedule

Base Program - to be split between state/federal/counties

Per square mile costs					
GSD (pixel resolution)	Accuracy Specification	Horizontal Accuracy	Cost per sq mi Areas 0-30 sq mi	Cost per sq mi 31-1000 sq mi	Cost per sq mi > 1000 sq mi
24"	NMAS 2’	13.3’	$63.80	$58.30	$52.80
1 meter	NMAS 1m	16’	$59.40	$53.90	$48.40

Base program - Summary costs per county					
County	**Sq. Mi.**	**County share for one collect**	County	Sq. Mi.	County share for one collect
Androscoggin	500	$15,000	Oxford	2350	$49,333
Aroostook	7300	$145,000	Penobscot	3650	$84,500
Cumberland	1100	$24,000	Piscataquis	4450	$97,833
Franklin	1850	$41,167	Sagadahoc	350	$8,667
Hancock	2230	$48,500	Somerset	4300	$86,167
Kennebec	950	$21,167	Waldo	850	$20,167
Knox	800	$18,667	Washington	3300	$66,167
Lincoln	650	$14,667	York	1200	$22,833

Buy-ups to the base program

GSD (pixel resolution)	Map Scale	ASPRS Class	Horizontal Accuracy	Buy-up costs per square mile		
				0-30 sq mi	31-1000 sq mi	> 1000 sq mi
3"	1"=50'	Level 1	6”	$919.60	$908.60	$897.60
3"	1"=50'	Level 2	12”	$477.40	$466.40	$455.40
6"	1"=100'	Level 1	12”	$268.40	$257.40	$246.40
6"	1"=100'	Level 2	2’	$151.80	$140.80	$129.80
12"	1"=200'	Level 1	2’	$103.40	$92.40	$81.40
12"	1"=200'	Level 2	4’	$69.30	$58.30	$47.30
24"	1"=400'	Level 2	8’	$46.20	$35.20	$24.20

For complete prices lists per town and county see http://www.maine.gov/geolib.

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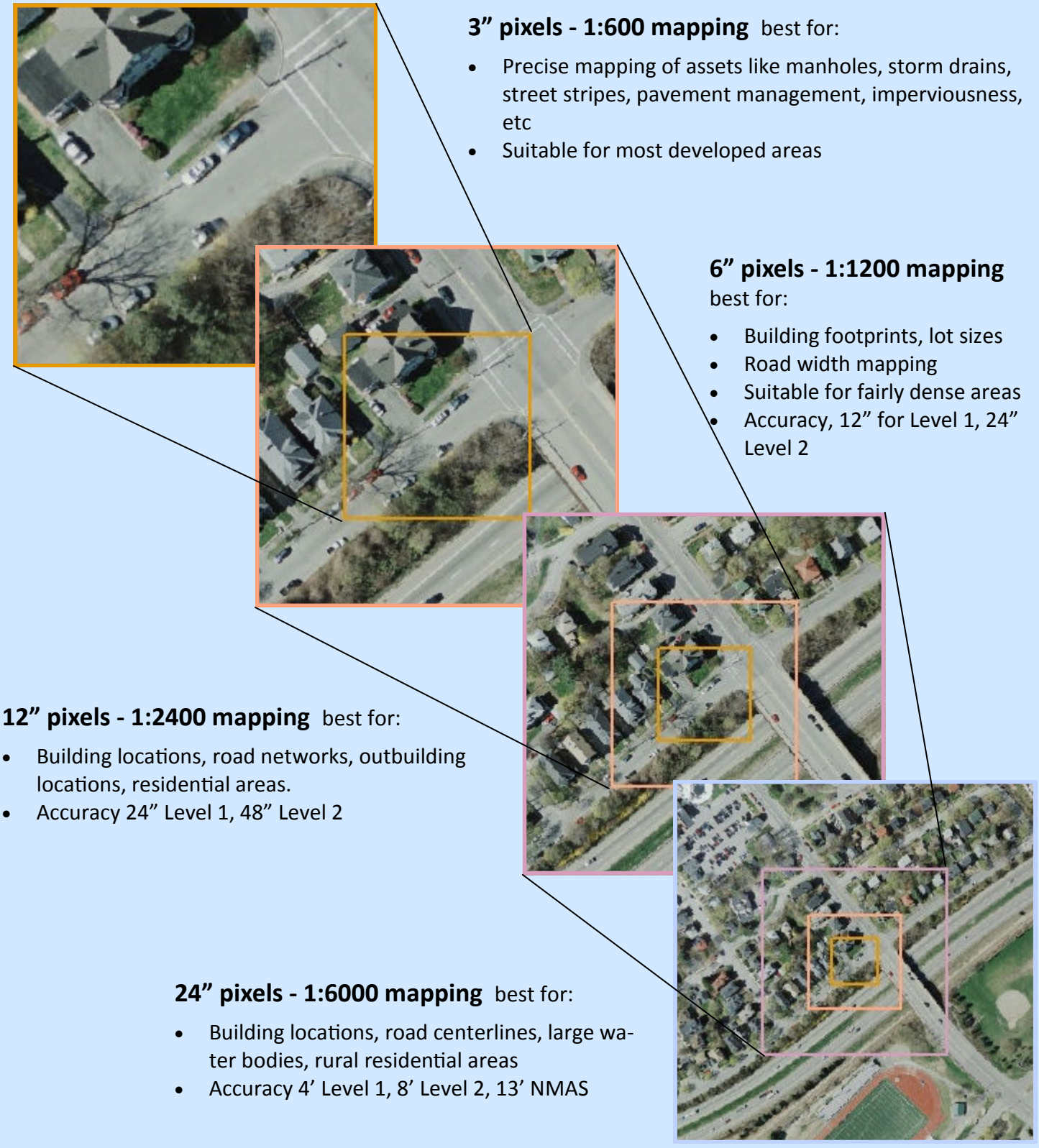
Comparison of products



3” pixels - 1:600 mapping best for:

- Precise mapping of assets like manholes, storm drains, street stripes, pavement management, imperviousness, etc
- Suitable for most developed areas

6” pixels - 1:1200 mapping
best for:

- Building footprints, lot sizes
- Road width mapping
- Suitable for fairly dense areas
- Accuracy, 12” for Level 1, 24” Level 2

12” pixels - 1:2400 mapping best for:

- Building locations, road networks, outbuilding locations, residential areas.
- Accuracy 24” Level 1, 48” Level 2

24” pixels - 1:6000 mapping best for:

- Building locations, road centerlines, large water bodies, rural residential areas
- Accuracy 4’ Level 1, 8’ Level 2, 13’ NMAS